

TECHNICAL DATA SHEET

Middlebrook 7H10 Agar Base

Principle

Mycobacterial infections, particularly tuberculosis, are a worldwide health problem, so for the cultivation and enrichment of *Mycobacterium*, use Middlebrook 7H10 agar base. Middlebrook and co-workers developed the Middlebrook 7H10 agar base formulation. This medium consists of many inorganic salts, which help in the growth of *Mycobacteria*.

Ammonium sulfate, L-glutamic acid, biotin, sodium citrate, and pyridoxine hydrochloride supply growth factors. Disodium phosphate and monopotassium phosphate help to maintain the pH of the medium. Magnesium sulfate, zinc sulfate, copper sulfate, and ferric ammonium sulfate are sources of trace ions.

Malachite green partially inhibits other bacteria. Media supplement with Middlebrook OADC Growth Supplement, which contains bovine albumin, dextrose, catalase, oleic acid, and sodium chloride. Dextrose serves as an energy source. Catalase neutralizes toxic peroxides. Albumin binds to free fatty acids that are toxic to *Mycobacteria*. Oleic acid is a fatty acid source that is essential for the metabolism of *Mycobacteria*.

Use: For enumeration of bacteria in milk and milk products, rinse waters and ice creams etc.

Contents*

Ingredients	Gram/Liter
Ammonium sulfate	0.500
L-Glutamic acid	0.500
Biotin	0.0005
Sodium citrate	0.400
Pyridoxine hydrochloride	0.001
Disodium phosphate	1.500
Monopotassium phosphate	1.500
Calcium chloride	0.0005
Magnesium sulfate	0.025
Zinc sulfate	0.001
Copper sulfate	0.001
Ferric ammonium citrate	0.040
Malachite green	0.00025
Agar	15.00
pH at 25°C	6.60 ± 0.2

* Formula adjusted for optimum performance and parameters

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Directions: Dissolve 19.46 grams in 900 ml distilled water containing 5 ml glycerol. Boil to dissolve the medium completely and sterilize by autoclaving at 15 lbs pressure (121 °C) for 15 min, cool it to 42-45 °C and aseptically add 100 ml of Middlebrook OADC Growth Supplement. Inoculate test sample aseptically.

Middlebrook OADC Enrichment Supplement (100 ml)

Bovine albumin fraction V	5.000 g
Dextrose	2.000 g
Catalase	0.004 g
Oleic acid	0.050 g
Sodium chloride	0.850 g
Distilled water	100.000 ml

Specimens' types analyzed

Pharmaceutical samples, clinical (Sputum) samples etc.

Precautions to be taken

These microbial media are intended for the in-vitro use only. All the handling, experiments, storage, and discarding should be performed with the help of skilled and knowledgeable technicians and as per the established guidelines. The material should be disposed only after proper sterilization by autoclaving. Please go through the MSDS of the media to avoid any accidents or in emergency.

Performance and Evaluation

The expected performance of the medium is liable to use as per the direction on the label when stored at optimum conditions and within expiry date.

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Quality Control

Appearance	Light beige colored free flowing, hygroscopic homogeneous powder
Reaction of 1.95% solution	6.60 ± 0.2 at 25°C
pH	6.40-6.80
Color and clarity of ready medium	Colorless to light amber colored solution, clear
Growth Promotion properties	Best at ≤ 100 CFU at $32-37^{\circ}\text{C}$ for 2-4 weeks
Indicative properties	Optimum at ≤ 100 CFU at $32-37^{\circ}\text{C}$ for 2-4 weeks
Negative control	Performed using sterile distilled water

Different Microbial Response

Prepare medium as per the directions. Inoculate and incubate test organism. Cultural characteristics observed after an incubation at $35-37^{\circ}\text{C}$ for 2-4 weeks.

Organism	ATCC	Inoculum (CFU)	Growth
<i>Mycobacterium tuberculosis</i> (H37RV)	25618	50-100	Luxuriant
<i>Mycobacterium fortuitum</i>	6841	50-100	Luxuriant

Storage and Shelf Life: The product is highly hygroscopic; keep the container tightly closed at all times and store it properly as per the conditions mentioned on the label. The declared expiry is valid only when stored as per the conditions mentioned on the label. Note: Sterilize media immediately after reconstitution.

Disposal: To avoid the contamination or propagation of any hazardous microbes the used, unusable or modified preparation of this product must be disposed after autoclaving after completion of task.

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Reference

1. Dubos and Middlebrook. 1947. Am. Rev. Tuberc. 56:334. 2.
2. Middlebrook and Cohn. 1958. Am. J. Pub. Health. 48:844.
3. *Difco Manual* (1998). 11th Edition. Difco Laboratories., Division of Becton Dickinson and Company, Sparks, Maryland, USA.
4. Rand, M. C., Arnold E. Greenberg, and Michael J. Taras, (1976), *Standard methods for the examination of water and wastewater*. Prepared and published jointly by American Public Health Association, American Water Works Association, and Water Pollution Control Federation.

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